



Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

The Medialogy education - AAU Copenhagen

Where art and creativity meet technology. Special focus on interactive systems design, programming and evaluation in problem based learning.

Nordahl, Rolf; Serafin, Stefania

Publication date:
2007

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Nordahl, R., & Serafin, S. (2007). The Medialogy education - AAU Copenhagen: Where art and creativity meet technology. Special focus on interactive systems design, programming and evaluation in problem based learning.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

The Medialogy education

Rolf Nordahl
Stefania Serafin
rn@media.aau.dk
sts@media.aau.dk



- **Stefania Serafin**, age 33
 - Ph.D. From Stanford University
 - M.Sc. from IRCAM, Paris
 - Bachelor in Computer Science from Ca'Foscari.
 - Currently Associate professor in sound modeling at Aalborg University Copenhagen



- **Rolf Nordahl, age 33**

- M.Sc. from Aalborg University
- Multimedia designer
- 4 years of film and music studies
- Currently Ph.D. student at Aalborg University Copenhagen + coordinator of medialogy studies
- Teaches courses on film, theory of science, audio analysis and synthesis, virtual reality
- Supervises bachelor and master students

Medialogy
copenhagen

What is Medialogy?



Medialogy
copenhagen

Aim of Medialogy

- To develop and educate problem solvers in a digital media age independent of task

Medialogy
copenhagen

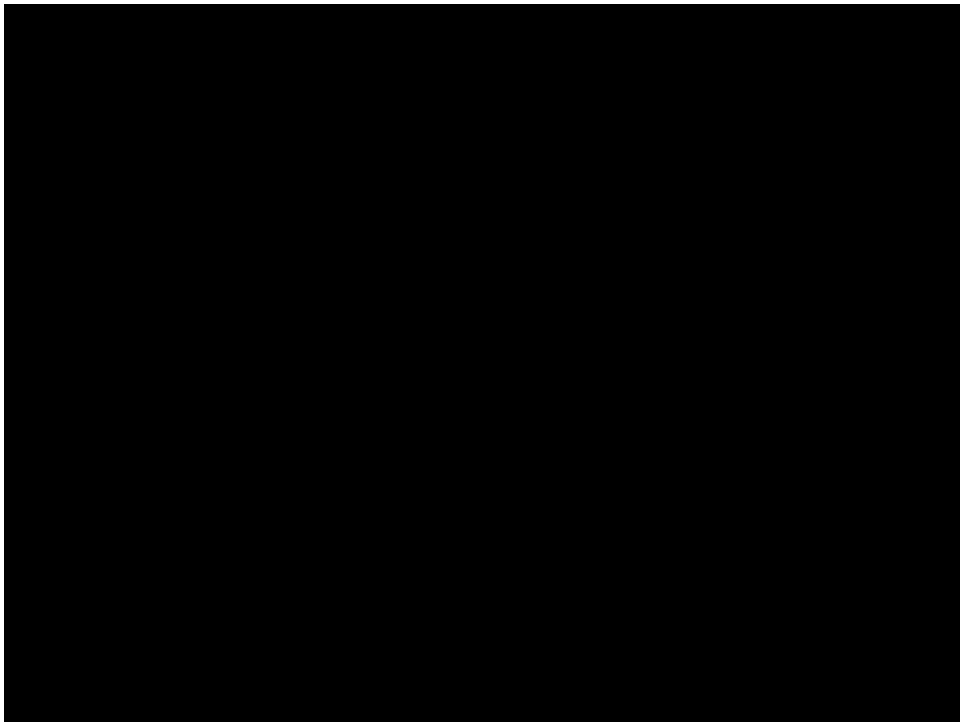
PBL

- Each semester: half course-work, half-project.
- 1) Define a problem
- 2) Design an application which relates to the problem.
- 3) Test the application

Medialogy
copenhagen

Bomberman evolved

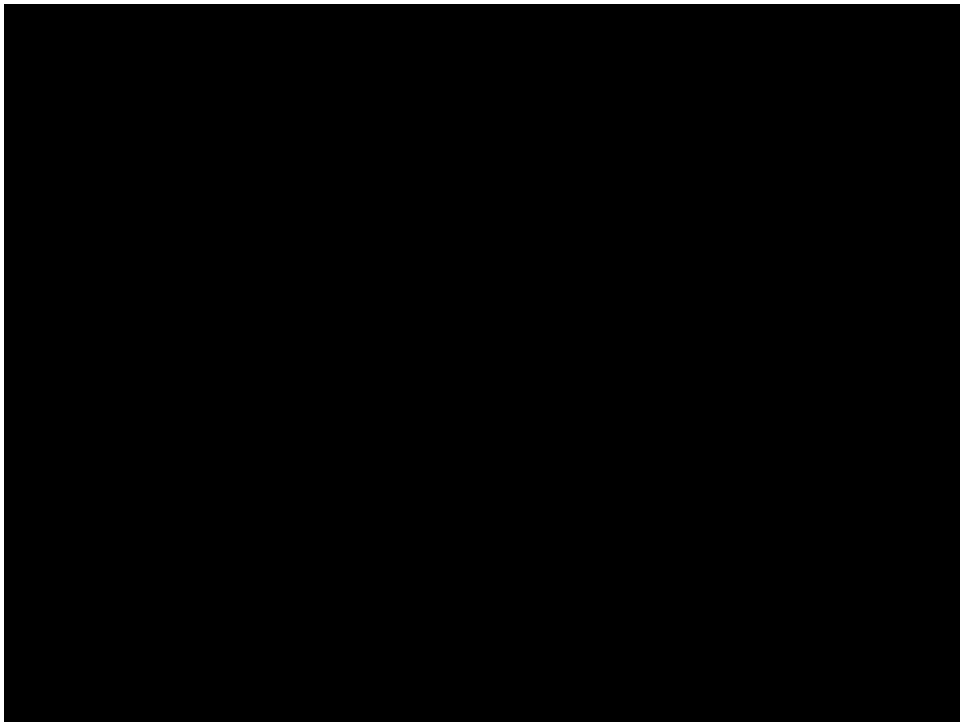
- 3rd semester, bachelor
- *To what extent computer games can facilitate exertainment?*



Wobble Active

- *How can we, through the use of available sensors and computer technology, enhance the experience while training/rehabilitating the ankles through both audible and visual interfaces?*

Medialogy
copenhagen



Sound in VR

- How does sound affect immersion and presence in VR?



- Rolf Nordahl, Master thesis, 2006

Medialogy
copenhagen

Presence test

- 140 subjects
- 6 different conditions
- Presence and motion increase with use of self-sound

Medialogy
copenhagen

Soundgrabber

- Spring 2007



Medialogy
copenhagen



Problem

- *To what extent can sound be made tangible by means of an intangible sensor-based physical interface?*

Questionnaire

- I felt that I was able to grab a sound
- I felt that I was able to relocate the individual sounds.
- Questions inspired from sensory-substitution presence questionnaire.

Artistic Conventions

- What are artistic conventions based on?
 - Tradition?
 - Myth?
 - Fact?
 - Experience?
 - Intuition?
- Are the conventions true?
 - Let us see some examples of conventions first

Medialogy
copenhagen

Common Conventions in Film

- Widescreen is better than standard 4:3
 - Possible motivation
 - Resembles the natural, human field-of-view
 - Allows more of the scene to be in the image

4:3



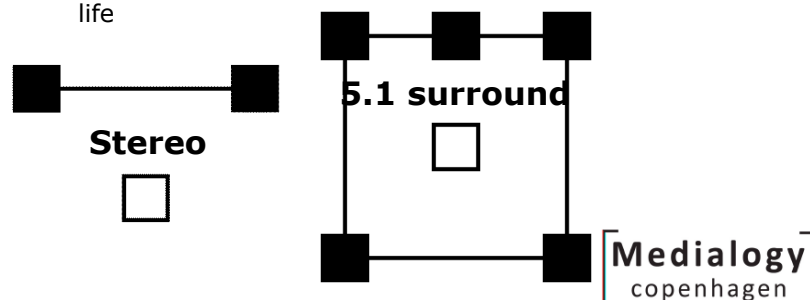
16:9



Medialogy
copenhagen

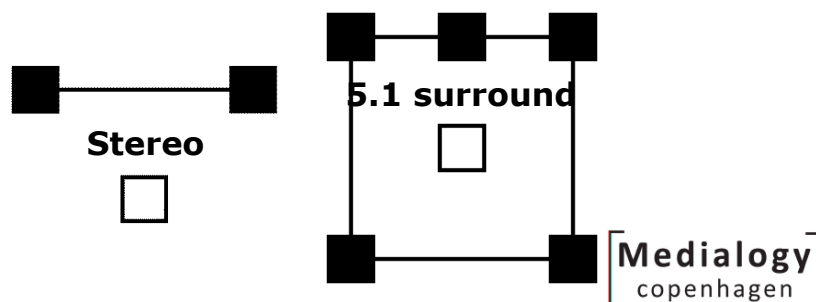
Common Conventions in Film

- Surround sound is better than stereo
 - Possible motivation
 - Surround sound adds the front-back dimension to the left-right dimension of stereo
 - Surround sound is closer to the sonic input from real life



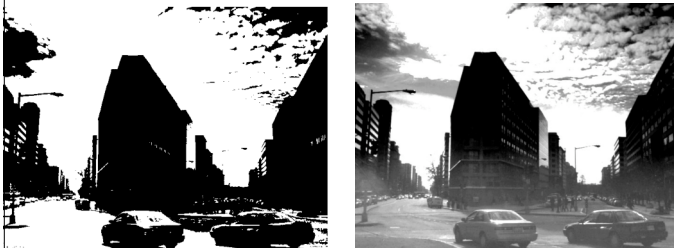
Common Conventions in Film

- Stereo is better than surround sound
 - Possible motivation
 - "Less is more"
 - Stereo has been successful for decades



Common Conventions in Film

- Black and white is the same as greyscale
 - Possible motivation
 - Allows for more detailed shading
 - “More is better”



Medialogy
copenhagen

Common Conventions in Film

- Stereo imaging is a thing of the past, not to be reintroduced
 - Possible motivation
 - Colours are degraded
 - Images look poor without proper glasses



Medialogy
copenhagen

Common Conventions in Film

- An artists opinion
 - Artistic intuition and conventions are superior to hard, tested facts

[Medialogy
copenhagen]

Common Conventions in Film

- An artists opinion
 - Artistic intuition and conventions are superior to hard, tested facts
- A natural scientists opinion
 - One should question, test, and attempt falsify any convention

[Medialogy
copenhagen]

Common Conventions in Film

- An artists opinion
 - Artistic intuition and conventions are superior to hard, tested facts
- A natural scientists opinion
 - One should question, test, and attempt falsify any convention
- Problems
 - How to combine these views? Is there a gap?
 - Some of the conventions are in conflict. How is this possible?

Medialogy
copenhagen

Common Conventions in Film

- An artists opinion
 - Artistic intuition and conventions are superior to hard, tested facts
- A natural scientists opinion
 - One should question, test, and attempt falsify any convention
- Problems
 - How to combine these views? Is there a gap?
 - Some of the conventions are in conflict. How is this possible?

Someone must be wrong!

Or ...?

Objectivity vs. subjectivity

Medialogy
copenhagen

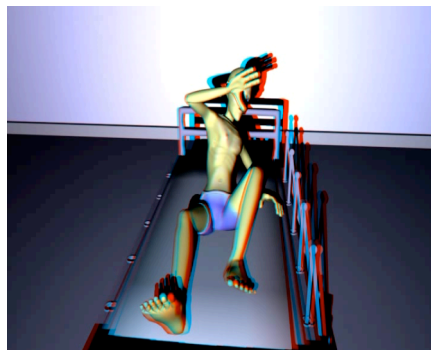
Testing the Conventions

- Bachelor student projects
 - Get students to **explore** the conventions **open-mindedly** through short film projects
 - **Challenge** students to **study** and **test** the **problematic** aspects of the conventions
 - **Allow and challenge** the students **to be creative** at making the material needed for the test cases

Medialogy
copenhagen

Testing the Conventions

- First project: The Abduction
 - Test the surround sound convention
 - Test the stereo imaging convention
 - Use the concept of *presence* for measurements



Medialogy
copenhagen

Testing the Conventions

- First project: The Abduction
 - Test the surround sound convention
 - Test the stereo imaging convention
 - Use the concept of *presence* for measurements



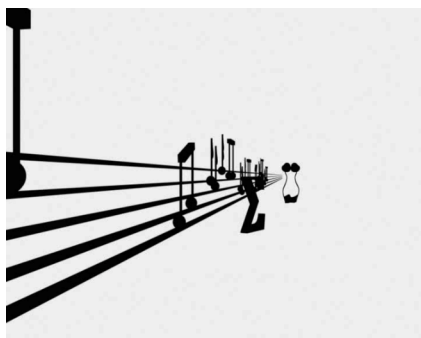
Medialogy
copenhagen

Testing the Conventions

- The Abduction: Test conclusions
 - Surround sound positively affects *presence as perceptual immersion* and *presence as transportation*
 - Stereoscopic imagery positively affects *presence as transportation*
- If these results can be validated, the use of technologies such as stereo and surround sound contributes to giving the viewers a better experience
- Results accepted for publication and presented at international conferences.

Medialogy
copenhagen

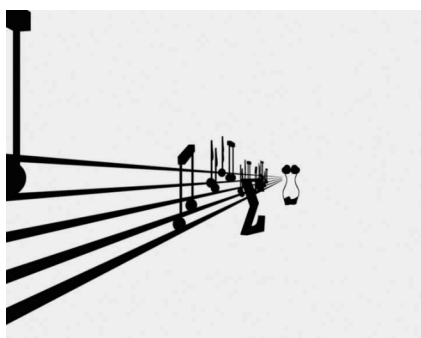
Testing the Conventions



- Second project:
Syntax Error
 - Test the black and white convention
 - Test if surround sound can compensate for lack of image shading

Medialogy
copenhagen

Testing the Conventions



- Second project:
Syntax Error
 - Test the black and white convention
 - Test if surround sound can compensate for lack of image shading

Medialogy
copenhagen



Physmism



Niels Boettcher, Steven Gelineck and Stefania Serafin

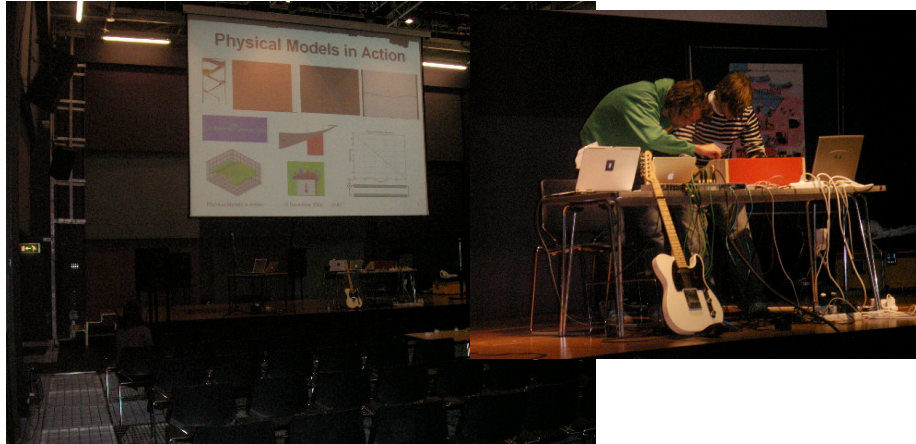
Medialogy
copenhagen



Control



Events



- Physical models in action, december 2007
- NIME 2007 (yesterday)

Medialogy
copenhagen



Problem

- *To what extent is it possible to improve the creative use of physical modeling sound synthesis?*
- *How could a possible interface intended for this use be designed and implemented?*

Medialogy
copenhagen

Methodology

- 11 professional musicians tested



Medialogy
copenhagen

Observations

Positive	Negative	Application
Many parameters		Friction
	Few parameters Predictability	Impact Impact
Unpredictability Low frequencies		Friction impact
Combined models		Friction+impact
Bi-manual control		Physical interface
Natural interaction		Physical interface
Clear interaction		Crank

Medialogy
copenhagen

Conclusions

- The students succeeded in making a creative project set in a technical, academic framework
- The open-minded approach allowed the students to gain insight into both the artistic and the engineering worlds
- Challenging the conventions in a quantitative manner provided results that artists can choose to make use of

Medialogy
copenhagen